GENERAL MANAGEMENT ASSISTANCE CONTRACT (GMAC)

Contract No: 674-C-00-01-00051-00

MTI Subcontract No.: 0173-0506-PO-TA54

SOUTH AFRICA:
CAPITAL & FINANCING STRATEGIES FOR MUNICIPALITIES (MUNICIPAL INFRASTRUCTURE INVESTMENT PLANNING) CASE STUDY REPORT

4 August 2006

This report was produced for review by the United States Agency for International Development. It was prepared by BC Gildenhuys of BC Gildenhuys & Associates with the support of ER du Toit and Dr G Peterson, under Mega-Tec, Inc.'s prime contract and addresses USAID/South Africa's Strategic Objective No. 6: Increased Access to Shelter and Environmentally Sound Municipal Services. The author's views expressed in this publication do not necessarily reflect the views of the United States. Agency for International Development or the United States Government

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Abstract

Developing capital and financing strategies for municipalities in South Africa proved to be a very valuable tool to assess the financial viability of infrastructure provision and service delivery strategies. It helps to direct and target service delivery initiatives within a very limited and constrained resource base in municipalities.

The study indicated that that it is possible to improve and indeed achieve access to at least basic services for all households. However, there are number of challenges in this regard. The political imperatives of councils to exceed basic service levels create tension in sustainable service delivery and are clearly not achievable even over the long-term. It remains difficult to apply uniformed policies and processes to all municipalities due to variations in local conditions. Household income levels and the local growth dynamics seems to be the most critical factors impacting on sustainability. Linking this to varying institutional capacities and levels socio-political stability necessitates a focused and locally developed strategy process. The principles and approaches underlying the processes should adhere to a general logic and approach applicable to municipal infrastructure investment planning.

The value of infrastructure investment planning has been proved and confirmed by the municipalities involved. It will however require a defined and targeted process to roll it out to all municipalities in South Africa.

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1 Introduction

A key component of the transformation of local government is the effective delivery of services to the respective communities it serves. In order to assist local government in this task, the United States Agency for International Development (USAID) appointed the Urban Institute from Washington DC to develop long-term capital improvement and financing strategies for three cities namely Tshwane, Mangaung and Polokwane.

The project was conducted over an 18 month period and the aim was to develop clear strategic choices in capital improvement and financing for the municipal council's consideration. The program implemented by Urban Institute was divided into three phases, namely;

- Phase 1, which focused on a stakeholder consultation process to get the necessary buy-in into the process;
- Phase 2, which outlined several preliminary options for council consideration described in a narrative form and modelled on excel spreadsheets and represented graphically, as well as a presentation of the preliminary options, feedback, and final options; and
- Phase 3, which entailed the development of a capital improvement and financing strategy document detailing each municipality's long range strategy.

The project and modelling exercises focussed on the following main services that the respective municipalities provide:

1. Water Services
2. Sanitation Services
3. Electricity Services
4. Roads and Stormwater
5. Refuse removal services

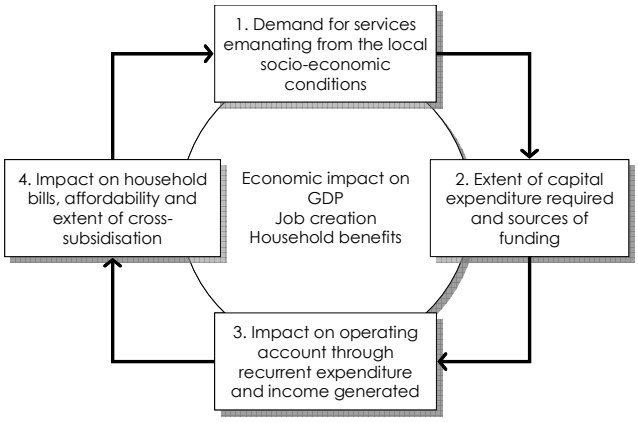
The final output focused on the development of a strategy document for each of the three pilot municipalities,

2 The project process and investment modelling

The approach to the project followed a simple logic as indicated in Figure 1. It implied that:

- The demand for infrastructure services determined the extent of capital expenditure and the funding thereof,
- With a direct impact on the operating account of the municipality which,
- Eventually reflects in the user account which is the basis for measuring affordability and hence the long term sustainability of infrastructure provision and service delivery.

Figure 1: The assessment process and outcomes



The economic impact of the strategy and policy options was also determined. The detailed outputs of the process are listed in Attachment A.

The project used an infrastructure investment planning model that allowed the development of various service delivery and investment scenarios for each municipality. These scenarios were

used to test policy options and assess the implications thereof. For the purposes of the project, adjustments and refinements were made to the existing infrastructure investment planning model.

Thirteen (13) main models were constructed which includes seventy eight (78) sub-models in total. The models were calibrated and scenarios were developed as part of the process. Due to the complexity of the model, the emphasis of the project was to develop solutions with the aid of the model and to convey an understanding of key relations and concepts involved in infrastructure investment planning. All model outputs were included in the final documentation to the municipalities.

The modelling was done within the context of the following principles:

- A model is a simplification of reality and cannot accommodate of all issues, circumstances and eventualities of the specific environment.
- A model is developed for a specific purpose and has limitations in terms of the range of issues it can cover.
- A model does not provide solutions but is a tool in decision making. A model cannot solve problems.
- The success with the application of a model depends on the knowledge and experience of the modeller, the ability of users to frame specific questions to be answered through modelling results, and the quality and integrity of inputs.
- Extended timeframe increases uncertainty. The key is to keep timeframe as short of possible and to adopt a scenario approach whereby changes and uncertainty can be analysed in terms of possible impacts on future development.

With this in mind, the modelling done for this project provided a very good strategic overview of development needs and sustainability parameters for infrastructure investment in the respective municipalities.

Figure 2: Example of targeted service levels

Targets for services - New & Upgrading					
		L1	L2	L3a	Total
Water	New	80%	20%	0%	100%
	Below basic	80%	20%	0%	100%
	Upgrade L1	100%	0%	0%	100%
	Upgrade L2	n.a.	100%	0%	100%
Sanitation	New	60%	22%	18%	100%
	Below basic	60%	22%	18%	100%
	Upgrade L1	60%	22%	18%	100%
	Upgrade L2	n.a.	100%	0%	100%
Electricity	New	80%	20%	0%	100%
	Below basic	80%	20%	0%	100%
	Upgrade L1	80%	20%	0%	100%
	Upgrade L2	n.a.	100%	0%	100%
Roads	New	80%	20%	0%	100%
	Below basic	80%	20%	0%	100%
	Upgrade L1	80%	20%	0%	100%
	Upgrade L2	n.a.	100%	0%	100%
Refuse	New	80%	20%	0%	100%
	Below basic	80%	20%	0%	100%
	Upgrade L1	80%	20%	0%	100%
	Upgrade L2	n.a.	100%	0%	100%

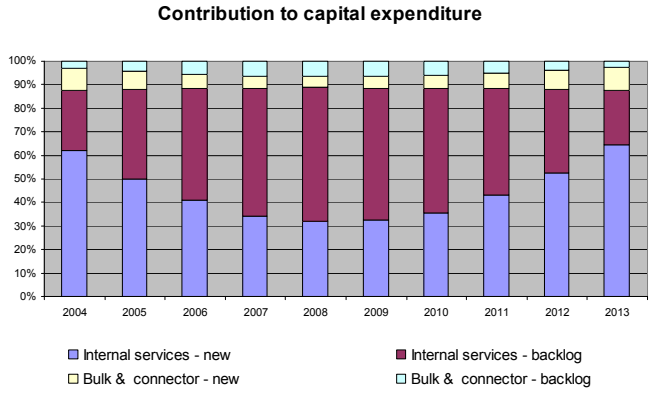
The model specifies different levels of infrastructure provision and service quality for each type of municipal service, then assigns service levels to different household income groups. The service levels used in the assessment process correspond with current government policy and are in line with Municipal Infrastructure Investment Framework (MIIF). There is continuous tension in each of the councils regarding the appropriateness of service levels. Expectations for service levels run high, with the common political expectation that all income groups can be upgraded to a full level of service quality, despite inability to pay. The model exercise demonstrates that this policy is not financially sustainable. If backlogs are to be eradicated and new growth accommodated, relatively little additional upgrading of service quality beyond current levels can be sustainably financed. Only one of the participating municipalities conducted a specific study to determine the financial impact of its service choices. In the other two municipalities, the impression is that service levels are directed by political and technical preferences rather than sustainability considerations

The final scenarios in all three municipalities aimed at determining a financially sustainable service delivery environment. The examples below show the elements of the modelled scenarios.

Targeted service levels seem to be a difficult concept for municipalities to understand since there is firm believe that all households should have access to full services in the near future. However, even upgrading to intermediate levels proved to be extremely expensive and generally was beyond the capacity of municipalities to finance on a sustainable basis. It also seems that it is not politically acceptable to exclude upgrading as an option although upgrading services might not prove financially achievable and sustainable.

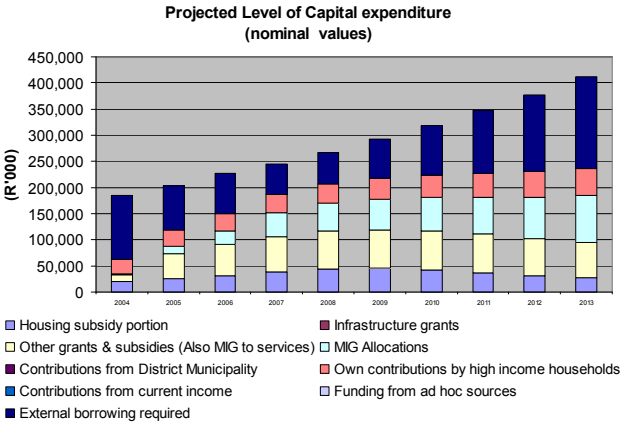
The demand for upgrading versus new investments differs substantially between the municipalities. The emphasis is not necessarily on backlogs in all cases but an understanding of local growth dynamic that has a direct impact on investment strategies.

Figure 3: Example of the backlog vs growth mix relating to infrastructure investment



Accelerated capital expenditure is central to the strategies of all three municipalities. However, the proposed strategies indicate that these levels of expenditure are only sustainable if the operating component is managed as required. The results of the modelling exercise showed that the ratio of capital expenditure to operating expenditure remains acceptable but is clearly dependent on optimal cost recovery and appropriate revenue management practices, which includes credit control and billing in line with household affordability levels.

Figure 4: Financing of Capital Expenditure

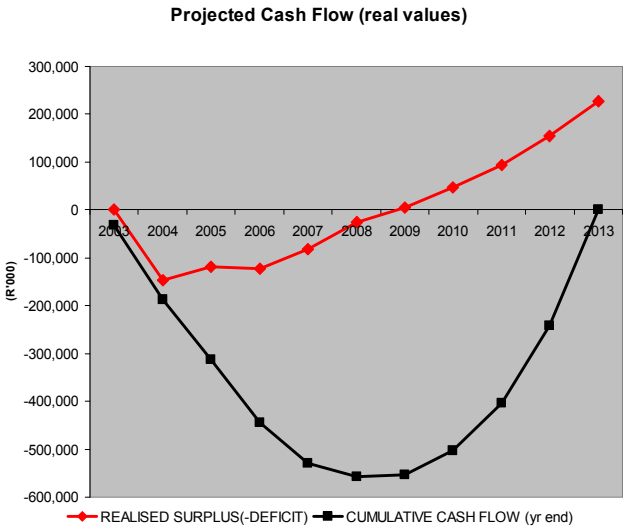


In all cases, the ability to meet service delivery targets is largely dependent on external loan funding. Capital subsidies from National and Provincial Government are based on historical and static backlog information and clearly do not meet the infrastructure and funding needs that develop through high household growth, such as in Tshwane's case. However, borrowing remains a core and important funding imperative for municipalities.

Complicating service delivery planning further is the non-alignment of government polices such as housing support and MIG allocations that makes it impossible for municipalities to achieve delivery targets.

It is important to note that larger municipalities relay on external loan funding to fund the respective capital programs. This has an implication for national policy direction in terms of cost-effective access to municipal credit.

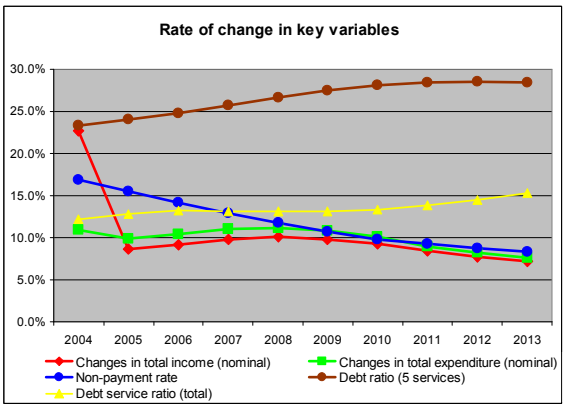
Figure 5: Example of a cash flow profile



shows an example of a project cash flow profile. The cash flow profile is a function of the operating account as well as the investment and service delivery targets achieved. It is possible in term of the model to set cash flow targets to meet operation and policy requirements. The final cash flow requirements are mainly determined by the demand for revenue increases and hence the impact on households bills.

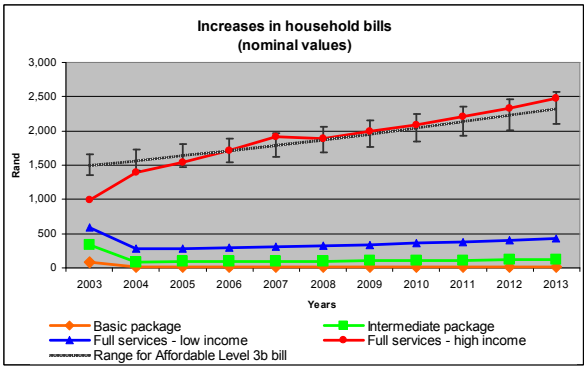
The assessment and modelling of infrastructure investment scenarios showed that the impact of an infrastructure investment strategy through the developed model on the current municipal infrastructure could be destabilising. The next graph shows examples of changes in key rates and ratios over the period of the investment strategy.

Figure 6: Projected changes in key rates and ratios



Each of the variables indicated has its own implications for the delivery of services and the management of the investment programme in the municipality. It should be noted that all these projections are premised on acceptable management practices and the implementation of national, local policies and strategies. The outcomes of the model measure the financial sustainability of investment programmes and not the impact of political instability, community resistance to policies or lack in management capacity.

Figure 7: Impact on household bills

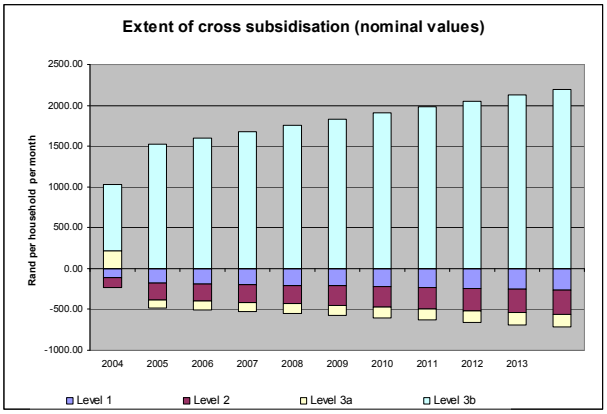


The impact on household bills shows the impact of indigent policies and support to poor households in terms of free basic services and the financial impact thereof on other households. All three municipalities analysed indicate that there are very real limits to what can be expected from households to pay towards municipal services. This includes the ability of higher income households to subsidise poorer households. Furthermore, it became clear that the municipal revenue base is mostly supported by the middle income groups, rather than households with high incomes. This is due to relative low number of high income house alls in each the cities.

Any ad hoc expenditure related to infrastructure investment, which does not lead to full cost recovery, will place the financial sustainability of the municipality further at risk.

In all three municipalities, it is clear that high income household bills will have to increase substantially to ensure that municipalities remain financially viable. In the absence of a well developed tariff strategy, it might imply short term impacts that can destabilise the socio-political system if not managed properly. The UI??? project team indicated that a fundamental reassessment of pricing polices and tariff structures are urgently required in all three municipalities.

Figure 8: Example of the extent of cross-subsidisation[1]



Given the challenge of revenue collection and the cost of delivering services, it is clear that it is not possible to apply full cost recovery to the income groups earning below R3500 per month. This highlights two issues.

- Firstly, costs generated though service delivery to the lower income groups should be controlled as far as possible, as cost recovery from users is impossible. In this respect demand management and appropriate services levels are the most critical factors.
- Secondly, cross subsidisation between higher and lower income groups is generally applied. However, through the assessments that were done for the project it is clear that there are already substantial subsidisation taking places and that there are very definite limits to the ability of a community to subsidise non-recovery of full cost in certain services. This was demonstrated in the limits on high income household bills reflected in the previous set of graphs. The next set of graphs show the extent of cross subsidisation. The levels of cross subsidisation are high and increases in all instances. The extent of subsidisation is not only determined by the cost of the service but also by the composition of rich and poor in any community.

3 Overview of the project by the project team

During its final assessment of the project, the UI Project team gave an overview of key issues identified during the project as well as some lessons learned from the process.

3.1.1 Technical versus management process

In terms of the execution of the project, it became evident that the technical process is complicated although logical and relatively easy to execute given the availability and credibility of data. The team sometimes found it difficult to convey some of the concepts and relations between capital investment, socio-economic change and the operating implications thereof. The complexity of the issues is reflected in the details of the model. However, the model seems to be understandable and logical in its approach to stakeholders although it was virtually impossible to convey a working knowledge of a model of this nature to the municipalities to other than technical specialists.

[1] L1, L2, L3a and L3b refer to services levels applied in the model. It refers to basic intermediate and full services as reflected in national infrastructure policies.

The institutional process is complicated and very difficult to manage from the outside as a consulting team. There are high levels of institutional instability in some of the councils with a continuous shift in responsibilities and a high turnover rate in terms of senior staff. The cross cutting nature of the issues addressed makes it difficult to house the process with any specific function in the councils. Furthermore, infrastructure investment planning affects all the core processes in the municipality. These processes are driven by tight and demanding schedules for completion and compliance. It is difficult to introduce and establish a very complicated bridging process amidst these other activities. Although there was a general recognition of the importance and value of infrastructure investment planning, it was not possible to internalise the process as part of the general planning and strategic processes in the municipalities.

The original SOW required that *"the Contractor will work with the Mayor and or the Mayoral Committee and Portfolio Committees appropriate in each municipality, and with the Municipal Manager and appropriate senior management official(s)…"* This was not practical and the team was guided by internal protocols, responsibilities and management arrangements in each council. It is however, critical that there is continuous strong internal leadership and a level sufficient to mobilise imports and resources across the full spectrum of council work.

3.1.2 Responsibilities in the Council

The diverse and cross cutting nature of the issues addressed through infrastructure investment planning was reflected in the points of responsibility in the three municipalities. All three municipalities had different functionaries or departments responsible for the project

- A municipal manager took direct responsibility (Tshwane)
- The person responsible for IDP and strategic planning (Polokwane)
- The executive director technical services (Mangaung)

In none of the municipalities were the project assigned to the treasury or finance departments although the greatest impact was made where the CFO took a direct and active role in the project. The progress and involvements of other departments was largely dictated by the current strategic priorities and objectives in the municipality. The financial advisors to the municipalities played a varying role although all three gave substantial support to the project. The withdrawal of these advisors will leave a substantial capacity gap in an already fragile environment.)

3.1.3 Project implementation

During the implementation of the project, it became clear that a gap continues to exist between strategic and operational levels in the municipalities. Both strategy and operational processes are well developed but the practical alignment seems to remain problematic. On the one hand, strategic directions are driven by political agendas and are often not tested in terms of practical and financial sustainability realities. On the other hand, there is a natural or induced inertia in adjusting operation to meet strategic objectives. This creates tensions, which are not necessarily always negative depending on political and managerial relationships in a municipality. The approach adopted by the UI Project team and the model applied helped to bridge this gap. However, the political response to question marks relating to strategies adopted is not always positive. It is evident that developing models and formulating strategies does not necessarily guarantee success in project implementation.

It seems that due to general capacity constraints operating departments find it very difficult to integrate their work on a horizontal level. There still is very little horizontal interaction between line departments. This emphasizes the role of the IDP and budget process as tools for integration and the importance of a project of this nature. Infrastructure investment planning allows the development of macro perspectives that sets both strategic and operational parameters for planning and strategy formulation within operation departments.

It was difficult to get municipalities to prioritise this project. The impression is created that legal or statutory compliance is the driving force behind many municipal activities and that any activity that does not contribute to the meeting these requirements cannot easily be accommodated.

Open working relationship was established with all three municipalities. Within capacity constraints and work pressure the needs of the team was always accommodated and supported. Institutional capacity does vary between the municipalities and had a direct bearing on the project.

3.1.4 General findings

The following further observations were made by the UI Project Team:

- Councils are under financial stress or will be under stress in the near future. Resources are limited and the ability to assess the long-term operating consequences of capital investment becomes critical for financial sustainability.
- Targets set by national departments for service delivery are not always realistic and within the resource capabilities of municipalities. Sustainable service delivery is dictated by local priorities, resources and conditions rather than national delivery targets.
- The bigger municipalities seem to have more institutional capacity and the ability to manage their affairs but less scope and room to manoeuvre in financial terms. In terms of a national support strategy, capacity building should clearly be the focus and with large municipalities, system development for improve planning and implementation might be an appropriate focus.
- Infrastructure investment planning has a resource based approach which contrasts with the IDP process that is very much a needs based approach. It is critical that these two approaches be aligned.
- A "one size fits all" approach is not possible. This is not a generic approach that can be applied to service delivery at local level. More emphasis needs to be put on developing local solutions for local problems. Rigid national policy directives might be more detrimental over the long-term than allowing municipalities do develop their own solutions to problems. This does not exclude guidance and support from national level within a well developed enabling rather than control environment.
- Infrastructure investment planning is not only a technical/financial exercise but touches on all aspects of municipal service delivery and development.
- Implementing the outcomes of infrastructure investment planning will require very specific commitments from the councils. A proactive approach towards delivery and specifically the funding thereof is very important.

4 The value of the project to the municipalities

The project was aimed at impacting on the respective municipal budgets of the three participating municipalities. Broad indications are that that it not only introduced fresh perspectives on existing policies but that the project had very important positive impact beyond the budget processes in each of the three municipalities. The following feedback was received from the municipalities:

- It is as a very important strategic management and planning tool. It assisted the councils to be proactive and allowed it to consider key implications of policy decisions that were not previously possible. The ability to develop and assess different policy scenarios is particularly helpful.
- It is a useful intervention tool. It has become the basis for ongoing discussion and debate in the councils. There is tension building up in the councils between political commitments

and financial realities as highlighted through the project. This is the main reason why the one council haven't adopted the report. Councils are still contemplating full services to all residents although the strategy report explicitly indicated that this is the least viable of all scenarios.

- The strategy had a direct impact on the MTEF and budget of one specific council. It has been integrated into it and is reflected in the detail financial planning of the council.
- The implications of the strategy must be carried through national support strategies such as the Municipal Infrastructure Grant (MIG) and the allocation of the equitable share (ES) transfers. The strategy showed that the basis on which these allocations are calculated does not align with reality.
- Maintenance is an issue that needs further attention. It should be incorporated as a module in the modelling and strategy formulation process.
- The technical report and strategy report were used as a base for the reviewing of the IDP. It became a key source document, directed strategies and helped with developing a consistent planning base.
- The document was used in strategic planning sessions.
- The project clearly raised several strategic issues in the council's politics and operations. All three councils indicated that a lot of work still needs to be done but they found it very difficult to take the matter s forward due to the political tensions that are generated.
- The council expressed a need for after care and support in order to be able to fully utilise the benefits of the project.

5 Rolling the process out to other municipalities

The understanding and acceptance of government's infrastructure service delivery policy and the consequences of deviating from the policy needs to be clearly understood and internalised by municipalities before any support strategy will have positive impacts. It implies that one will have to defuse the tension between what is politically demanded and what is financially and otherwise practical. There are no moral or ethical grounds for providing one section of the community with higher than basic services funded through the tax base and leave other households without any access to services. Government might consider building a condition into the MIG that subsidies support is subject to a programme of rolling out basic services and that basic service levels can only be exceeded once all households do have access to at least basic services.

The value of the approach adopted in this process was clearly demonstrated, not only in this project, but also in the many other cases where it was applied or being applied. In rolling the project out to other municipalities, the following should be considered:

- As indicated above, there should be a clear and unambiguous message going out regarding services and service levels as the basis for government support. Government should be clear both about the use of capital subsidies for basic services and policy regarding future support for O&M costs of local basic service provision.
- Capacity to manage and to implement plans and budgets are critical. There is no sense in providing this kind of assistance in municipalities where there is no capacity to dealt with the consequences of the project.
- Project implementation should constitute five clear phases, namely:
    - Developing a clear understanding of what will be done, an understanding of key concepts and relationships in infrastructure investment planning. This specially relates to issues regarding socio-economic needs, capital investment and the operating consequences thereof and as to how this finds its way

through the cost recovery practices. The lack of clearly understanding that these relationships and process is one of the main reasons for failing to deal with operating and maintenance consequences of projects funded through subsidies and grants.

- Constructing the necessary models that can show scenarios and tradeoffs between different approaches and polices. This requires high levels skills which are currently very limited but can be developed while such a programme is rolled out.

  Given the difficulty encountered by the pilot program in establishing counterpart local technical teams that could handle model analysis on their own, alternative strategies are worth considering. One such alternative would have SANT establish a roving technical team that could assist municipalities in model analysis, once very clear questions, within the model's capabilities to answer, were framed by local officials.

- Developing strategies for implementation with the active involvement of local politicians. This issue is important for both capacity building and the acceptability of the outcomes. The lack of political involvement through the planning and technical process might be one of the main reasons for the political-needs vs financial-sustainability tension that develops. (Through the pilots undertaken for this project, the impression was sometimes that politicians are deliberately kept out of the process and that only selective results and outcomes are made available once all the work was done).

- The project cannot end with the completion of the capital investment strategy. Direct aftercare and support are required in order to integrate the strategies with other core planning and budgeting processes as well as internalising the consequences in the political and management processes in the municipalities.

- Limited long term support with model maintenance, performance measurements in terms of agreed strategies, and ad hoc applications of the model for other purposes is also required.

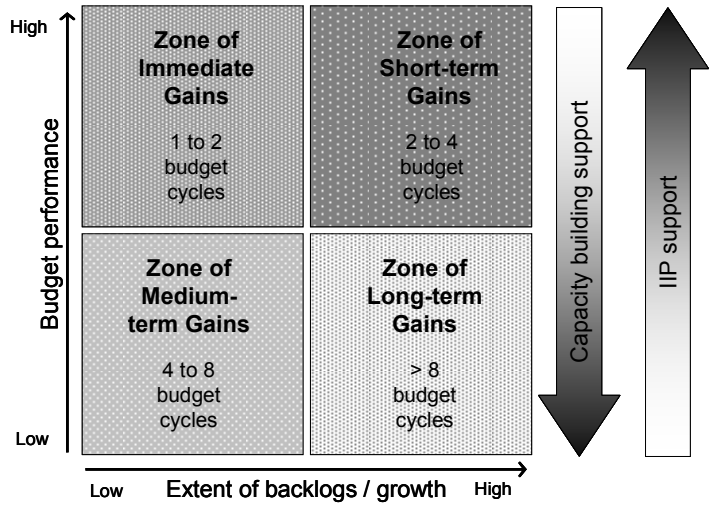
- The role out of project of this nature should be part of a broader national process of policy and strategy alignment at national level. This specifically refers to the current non-alignment of the housing subsidy system with other infrastructure support strategies.

- The model needs to be cleaned-up, refined and if possible simplified as part of the process. However, it can still be used in its current format and structure.

- The pilot project experience is instructive for establishing the scale of subsequent roll-out. Roll-out to all municipalities at once clearly is infeasible. A staged roll-out, focusing initially on large municipalities, is preferable.

- The challenge at the heart of implementation is the fact that it is financially impossible to literally meet the announced target dates for elimination of service backlogs, and that upgrading of service standards for some households further delays backlog elimination for others. Application of the model acutely illustrates this fact. However, it also raises political tensions, by highlighting the trade-off between financial sustainability on the one hand, and complying with national mandates on the other. Enlargement of local choice over the investment and financing strategy appropriate to address backlogs would seem to be a pre-requisite for optimal application of the model.

Figure 9: Targeted IIP support strategy

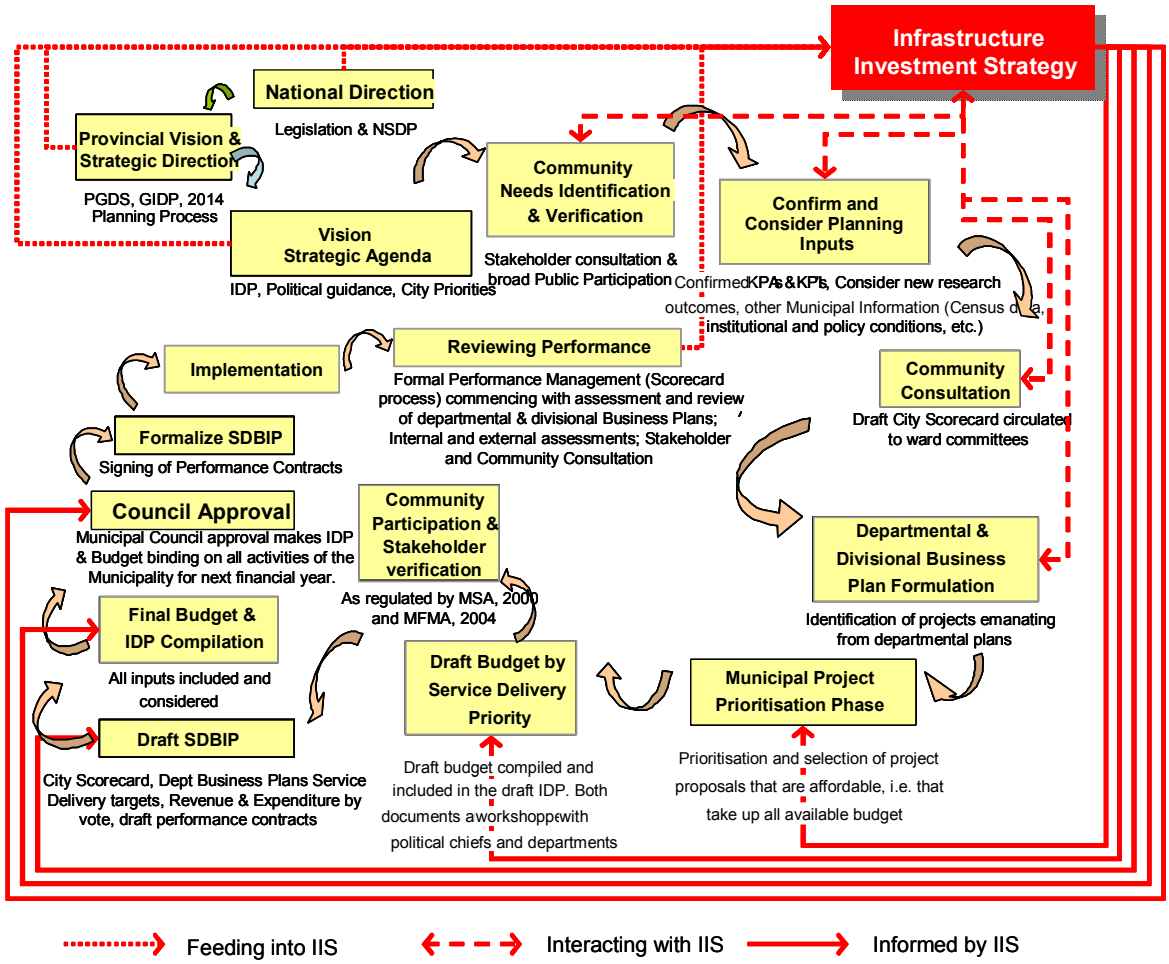


The role out the process to other municipalities should be based on an approach that targets a combination of municipalities with capacity and high levels of backlogs and/or high levels of growth in demand for services. This will lead to an approach with four categories of municipalities based on these two variables.

The diagram above demonstrates the approach and principles. It is therefore required that the municipalities be indexed and ranked according to the criteria suggested. Thereafter it will be possible to develop a targeted strategy that can directly support Government's aim of basic service delivery and infrastructure provision to all. It is however, important that this does not happen in isolation and that it be integrated into a comprehensive strategy that deals with the objectives of the national financial support mechanisms, Project Consolidate, the IDP and budgeting frameworks and processes. This approach assumes an alignment of all current policies and strategies that aims at improving municipal service delivery.

In terms of implementing IIP within municipalities, there is no "right time" to introduce the process. It is however important to align it with the local IDP and budget processes. The aim should be to integrate it into the two processes. It should be used as a vehicle to bridge gaps that exist between the IDP and budgeting processes. Establishing the process might take time and might not be easy as indicated above. However, strategies should not change over the short term. Once the modelling process is completed, strategies developed, and adopted will any further scenario development not be necessary in intervals of less than 3 to 5 years. However, exceptions might require a remodelling process to be followed in instances were there are fundamental changes in the municipality such as re-demarcation of boundaries, changes in powers and functions, outsourcing of core services or an inability to meet strategy targets as indicated through an annual performance review process.

Figure 10: Incorporating IIS into the local development management cycle



6 Concluding remarks

Although the pilot project was only implemented in three municipalities valuable lessons that can assist to improve not only the model but also processes in municipalities were learned. The following key aspects should be noted:

1. Internal challenges within municipalities:
   a. The project must be managed by someone with sufficient position power in the organisation to mobilise people and resources and to addresses fundamental strategic issues that might impact on the corporate strategy of municipalities.
   b. The success of the project is not only dependent on the skills and ability of the project team but fundamental concepts, relationships and underlying processes should be understood by management as well as the decision makers. To convey and internalise this is not always within the scope of a single project.
   c. There seems to be a lack of capacity in municipalities to understand the strategic importance of project of this nature and there is a clear tendency to ignore issues that contradict or threatens the political agenda irrespective of the consequences.
   d. The quality of base information is very suspect if available at all. Information is not readily available and where information is available that validity thereof should always be tested. The quality and availability of data impact on the outcome of the study.

e. Political involvement is important during the process to ensure understanding, and acceptance of project outcomes. Experience has shown that the exclusion of politicians from the process largely diminishes the value of the project.

f. Development planners responsible for IDP do not understand municipal finances and infrastructure provision processes. The current approaches to and outcomes of IDP processes do not link or integrated with budget processes. There is a clear need to put more emphasis on system integration in municipalities.

g. That there is still a lack of synergy and integration in municipalities relating to infrastructure development planning

h. Although household affordability impact seriously on the financial viability of municipalities it remains a low priority in development planning and strategy processes. The realities thereof are not consistent with political objectives. There is a critical need for inducing financial and capacity realities into political objectives.

i. Infrastructure development strategies are not developed in line with the resource base of the municipality but are driven by the needs in communities.

j. The importance of affordability, financial sustainability and the sufficient provision for the consequential operating expenditure such as maintenance as core to sound financial management is not fully embraced by the political decision makers in municipalities.

2. External challenges the municipalities face:

a. The expectations of communities exceeds the capacity of municipalities

b. Community involvement and community consultation with the necessary political realism are critical in the process of infrastructure investment planning.

c. The uncertainties and expectations regarding service levels should be addressed as a national strategy. The current uncertainty and expectations can be regarded as a serious threat to the financial and political stability of municipalities.

d. National policies should be aligned and integrated. A lack of vertical integration of policy objectives between the three spheres of government is counter productive and impact negatively on municipalities. It was reported by the councils that, for example, housing project supported by the provincial housing boards are not necessarily located in term of the spatial priorities of municipalities.

e. None payment for services by those than can pay and illegal consumption of services increases the unit cost of service delivery resulting in pressure to increase tariffs as well as the level of cross subsidisation between income groups.

3. Application of the model:

a. The model has developed into a complicated model that is not easy to learn impacting on skills transfer. It is not only dependent of high level technical skills but an understanding of all spheres of local government operations, technically and financially.

b. There is a lack of understanding of the process to be followed in the implementation of the recommendations of the initial study. The need was repeatedly expressed by municipalities for support with the implementation of the strategies.

c. Developmental local governments have been operating, and will continue to operate, under severe financial constraints. In their capital investment decisions, municipalities must guard against both underinvestment and overinvestment. Under apartheid, many areas in South Africa suffered from chronic underinvestment, resulting in development backlogs and inadequate access to basic services. The model plays an important role in developing policy options and strategies in addressing these issues.

d. The model and modelling of different scenarios do not solve problems. It helps to clarify and inform decision making. A model cannot replace experience and skills of decision makers.